

NAME: _____

DATE: _____

p1020: graded take-home open-note practice exam (version 212)**Question 1**

Let f represent a function. If $f[11] = 45$, then there exists a knowable solution to the equation below.

$$y = \frac{f[\frac{x}{2} + 9]}{5} - 3$$

Find the solution.

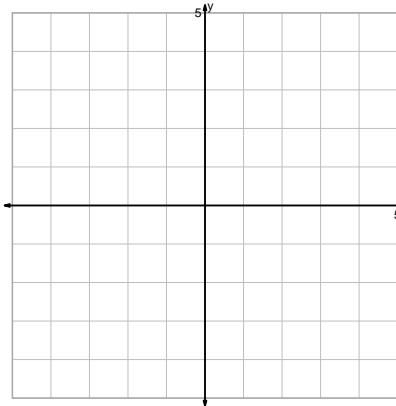
$$x =$$

$$y =$$

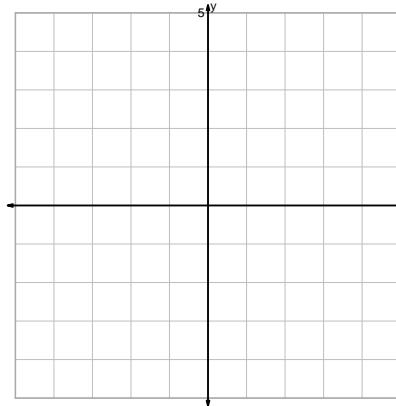
Question 2

Graph the equations accurately. For each integer-integer point on the parent, indicate the corresponding point precisely. Also, with dashed lines, indicate any asymptotes.

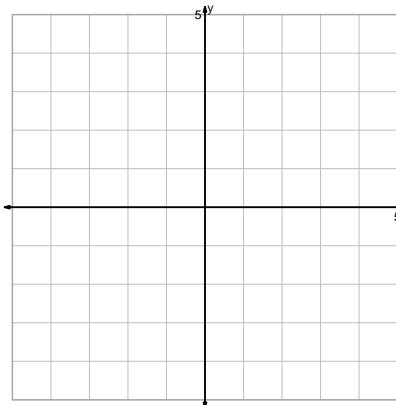
$$y = (x+2)^3$$



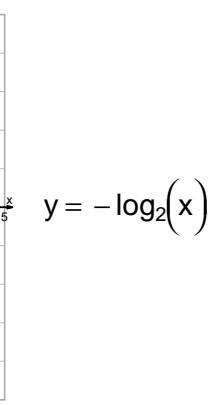
$$y = \log_2\left(\frac{x}{2}\right)$$



$$y = \sqrt{x} + 2$$

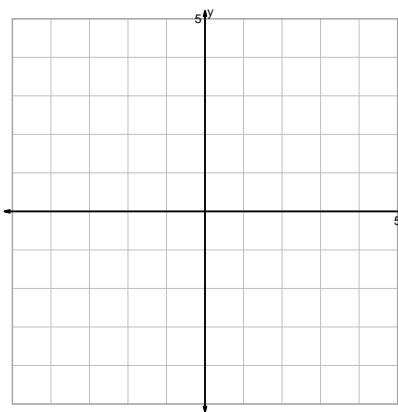


$$y = -\log_2(x)$$

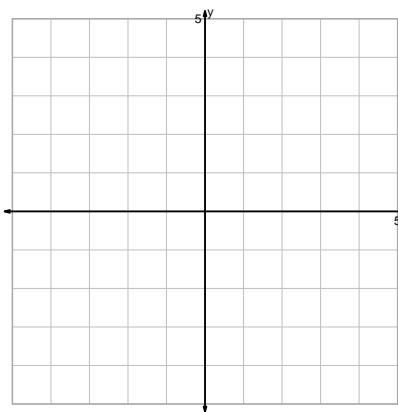


Question 2 continued...

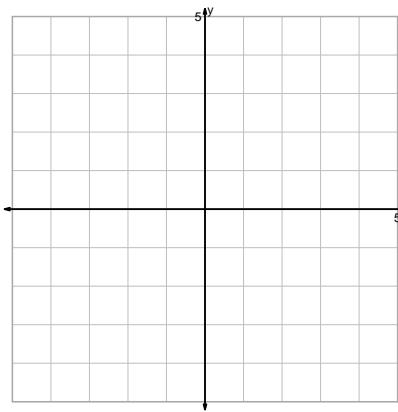
$$y = (2x)^3$$



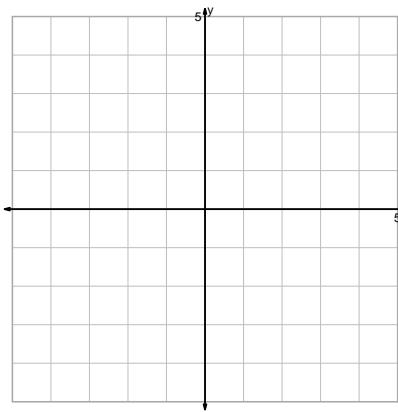
$$y = (x-2)^2$$



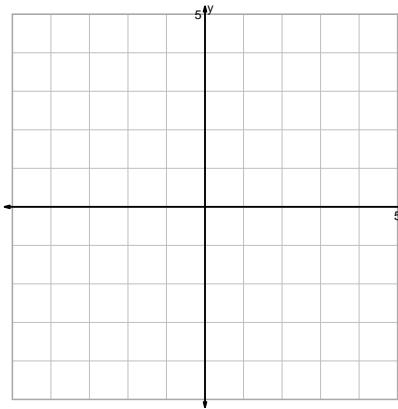
$$y = 2 \cdot x^2$$



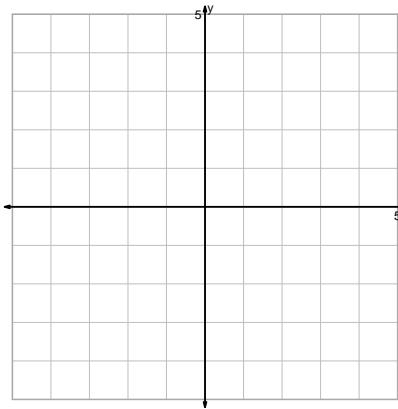
$$y = \frac{2^x}{2}$$



$$y = \sqrt{-x}$$

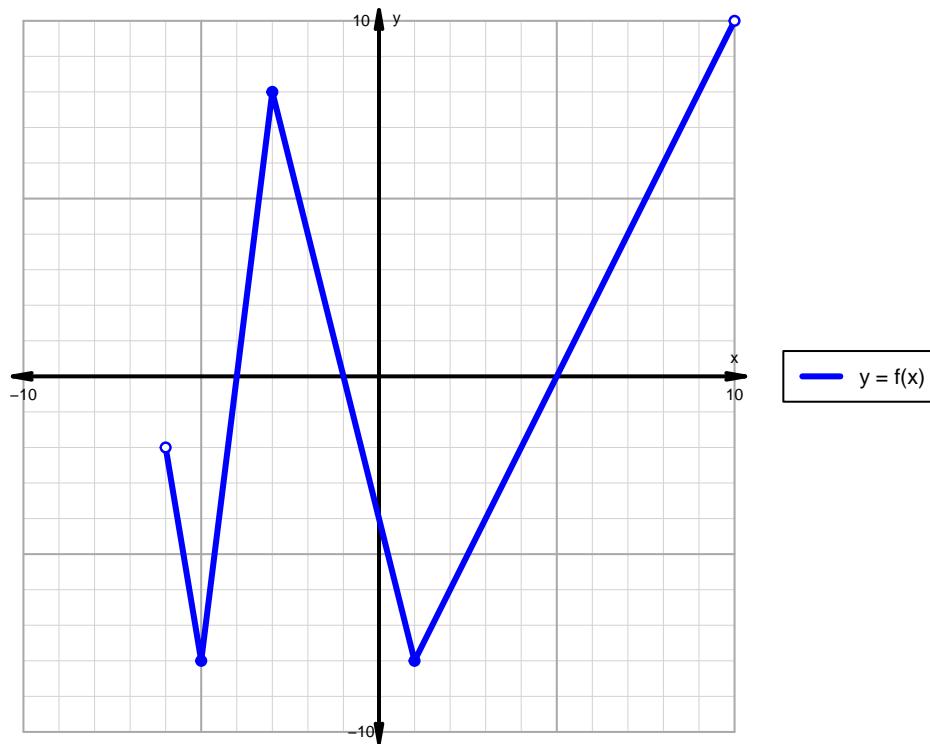


$$y = \sqrt[3]{x} - 2$$



Question 3

A function is graphed below.



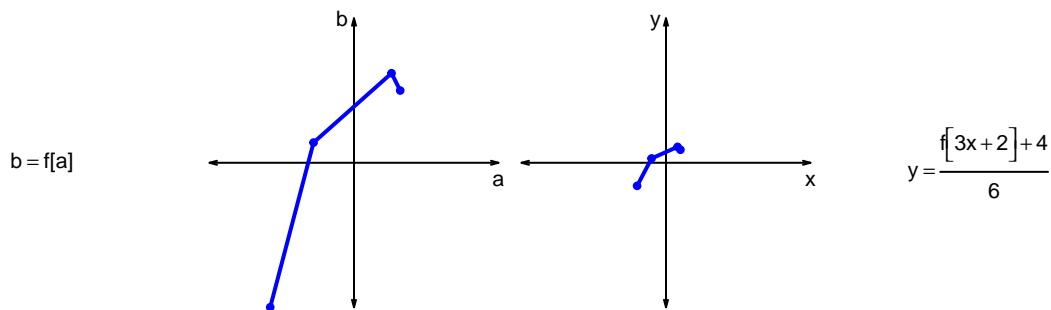
Indicate the following intervals using interval notation.

Feature	Where
Positive	
Negative	
Increasing	
Decreasing	
Domain	
Range	

Question 4

Let f represent a function. The curves $b = f[a]$ and $y = \frac{f[3x+2]+4}{6}$ are represented below in a table and on graphs.

a	b	x	y
-58	-100	-20	-16
-28	14	-10	3
26	62	8	11
32	50	10	9



- a. Write formulas for calculating x from a and calculating y from b . (Or, write the coordinate transformation formula.)

b. What geometric transformations (using words like translation, stretch, and shrink), and in what order, would transform the first curve $y = f[x]$ into the second curve $y = \frac{f[3x+2]+4}{6}$?

Question 5

A parent square-root function is transformed in the following ways:

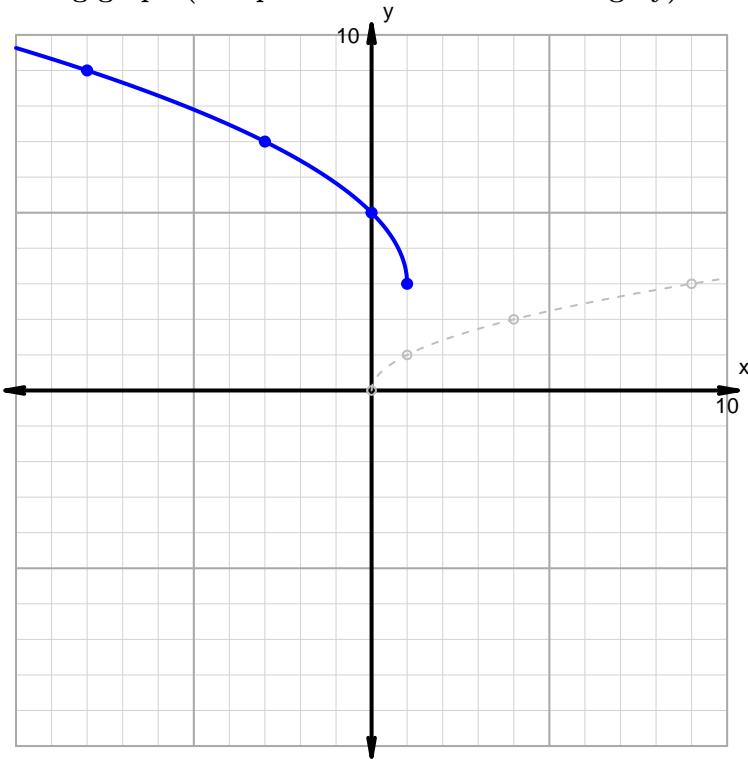
Horizontal transformations

1. Horizontal reflection over y axis.
2. Translate right by distance 1.

Vertical transformations

1. Vertical stretch by factor 2.
2. Translate up by distance 3.

Resulting graph (and parent function in dashed grey):



- What is the equation for the curve shown above?

Question 6

Make an accurate graph, and describe locations of features.

$$y = \frac{1}{2} \cdot |x - 3| - 2$$



Feature	Where
Domain	
Range	
Positive	
Negative	
Increasing	
Decreasing	